

**REMARKS**

**Claim Rejections**

Claims 7-14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Kojima et al. (U.S. 5,620,384).

**Claim Amendments**

By this Amendment, Applicant has amended claims 7 and 11 of this application to recite, *inter alia*, a front derailleur wherein when the chain guide is in the highest speed mode, the linkage rod is located at a position substantially parallel with the seat tube and the restoring force of the return spring is equal to an active component force required for shifting the chain and the ***entire restoring force*** is utilized for ***down-shifting the chain from the highest gear to the middle gear.*** It is believed that the amended claims specifically set forth each element of Applicant's invention in full compliance with 35 U.S.C. § 112, and define subject matter that is patentably distinguishable over the cited prior art.

As known, when a bicycle chain is located at the highest level (the largest sprocket of the front derailleur), the return spring (52) (see Applicant's Figures 6 and 7) is fully coiled, so the spring (52) reserves the maximum returning force. In comparison, Applicant teaches and recites utilizing the maximum returning force efficiently to pull down the chain from the highest level (the largest sprocket of the front derailleur) to the medium level. This is the major inventive step of the present invention.

As shown in Applicant's Figures 8 to 11, and outlined in greater detail in the Amendment of February 8, 2006, the chain guide (3) of the linkage mechanism is operating in highest speed mode -- the chain is engaged in the largest sprocket, and the linkage rod (4) is at a position parallel to the seat tube (A1). Therefore, the imaginary vertical line V is located at an end of pivoting rang so that the restoring force (FsH) of the return spring (52) is equal to the active component force (FcH) for actually shifting the chain (C), that is, the restoring force is utilized fully for down-shifting. Moreover, the moving track (T1) of the chain guide (3) according to the

present invention is an upward continuous arc. Comparing the moving track (T2) of the prior art, as seen in Fig. 12, the track (T1) enables the chain guide (3) to be more adjacent to the larger sprocket of the chain-wheel B1. Besides, the return spring with less strength is used in the present invention since the restoring force is utilized fully for down-shifting in high speed mode comparing to the prior art so that less force will be needed for up-shifting. Consequently, the up-shifting efficiency is improved.

With respect to force variation, the down-shifting of the present invention also differs from up-shifting of Kojima et al. '384. In Figures 9 and 10 of Kojima et al. '384, the force varies from angle A to angle B, which cross over the vertical line H. However, in the present invention, see Figures 8, 9, 10 and 11, the force applied to down-shifting varies in angle  $\phi_1$ , and does not cross over vertical line V. The return spring will retain the maximum restoring force when the force reaches the vertical line V.

As noted above, Applicant has amended claims 7 and 14 to recite a front derailleur, *inter alia*, wherein when the chain guide is in the highest speed mode, the linkage rod is located at a position substantially parallel with the seat tube and the restoring force of the return spring is equal to an active component force required for shifting the chain and the ***entire restoring force*** is utilized for ***down-shifting the chain from the highest gear to the middle gear***.

In comparison, in FIG.2 of Kojima's invention, there is an angle B between H line and the virtual dot line. Applicant submits that, due to Kojima's angle B, it is clear that Kojima cannot fully utilize the restraining force to downshift from the highest gear to the middle gear. In Applicant's invention, there is no such angle B formed by line H and the dot line. Therefore, as Applicant argued in the Amendment of February 8, 2006 (the text of which is incorporated into this Amendment), since there is no bias angle B being formed, the ***entire*** restoring force will be fully utilized without loss to down shift the chain from the highest to the ***middle gear***.

Kojima et al. '384 do not teach when the chain guide is in the highest speed mode, the linkage rod is located at a position substantially parallel with the seat tube

and the restoring force of the return spring is equal to an active component force required for shifting the chain and the entire restoring force is utilized for down-shifting the chain from the highest gear to the middle gear.

It is axiomatic in U.S. patent law that, in order for a reference to anticipate a claimed structure, it must clearly disclose each and every feature of the claimed structure. Applicant submits that it is abundantly clear, as discussed above, that Kojima et al. '384 do not disclose each and every feature of Applicant's amended claims and, therefore, could not possibly anticipate these claims under 35 U.S.C. § 102. Absent a specific showing of these features, Kojima et al. '384 cannot be said to anticipate any of Applicant's amended claims under 35 U.S.C. § 102.

It is further submitted that Kojima et al. '384 do not disclose, or suggest any modification of the specifically disclosed structures that would lead one having ordinary skill in the art to arrive at Applicant's claimed structure. Thus, it is not believed that Kojima et al. '384 render obvious any of Applicant's amended claims under 35 U.S.C. § 103.

### **Summary**

In view of the foregoing amendments and remarks, Applicant submits that this application is now in condition for allowance and such action is respectfully requested. Should any points remain in issue, which the Examiner feels could best be resolved by either a personal or a telephone interview, it is urged that Applicant's local attorney be contacted at the exchange listed below.

Respectfully submitted,

Date: August 7, 2006

By:

  
Demian K. Jackson  
Reg. No. 57,551

TROXELL LAW OFFICE PLLC  
5205 Leesburg Pike, Suite 1404  
Falls Church, Virginia 22041  
Telephone: 703 575-2711  
Telefax: 703 575-2707

**CUSTOMER NUMBER: 40144**